ORDER NO. MD9305031C2

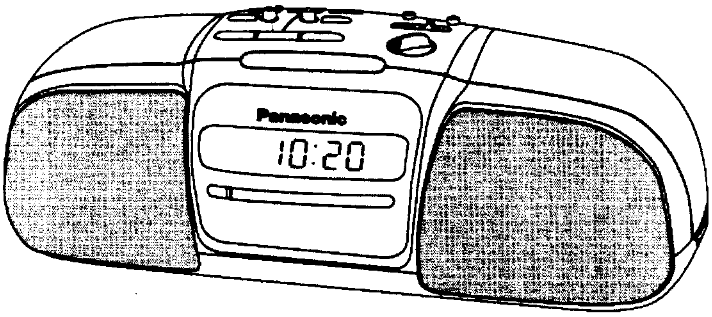
Service Manual

Stereo Clock Radio

Radio

GC07

RC-X230



Colour

(K) . . . . Black Type
(W) . . . . .White Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe	(K), (W)
(EB)	Great Britain	
(EG)	Germany & Italy	

■SPECIFICATIONS

General :

Power Requirements :	AC; 230 ~ 240V, 50 Hz Battery; 9 V (6F22/006P) for back-up
Power Consumption :	10 W
Power Output :	1.2 W x 2...RMS(max)
Speakers :	8 cm x 2 (16Ω)
Jacks :	
Input :	AUDIO IN; Ø 3.5, 47kΩ
Output :	HEADPHONES; Ø 3.5, 32Ω
Dimensions (W x H x D):	311 x 108 x 143 mm
Weight:	1.4 kg without battery

Radio Section :

Frequency Range :	FM;	87.5 ~ 108 MHz
	MW;	520 ~ 1610 kHz
	LW;	148.5 ~ 285 kHz
Intermediate Frequency :	FM;	10.7 MHz
	AM;	459 kHz
Sensitivity :	FM;	22 dBμ/50 mW output (- 3 dB Limit Sens.)
	MW;	55 dBμ/m/50mW output
	LW;	58 dBμ/m/50mW output

Notes :

1. Specifications are subject to change without notice
2. Weights and dimensions are approximate.

Panasonic

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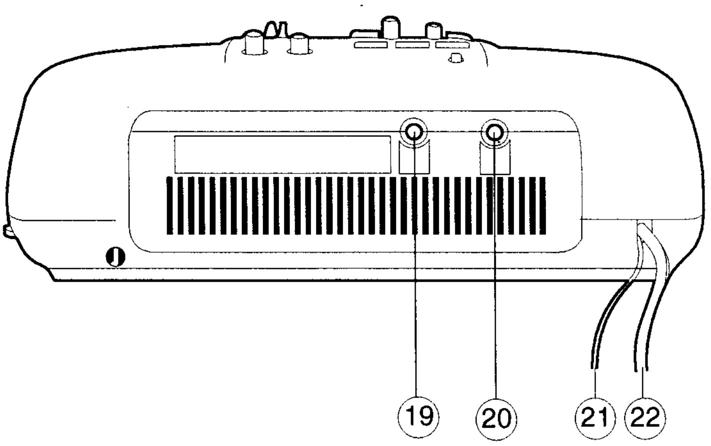
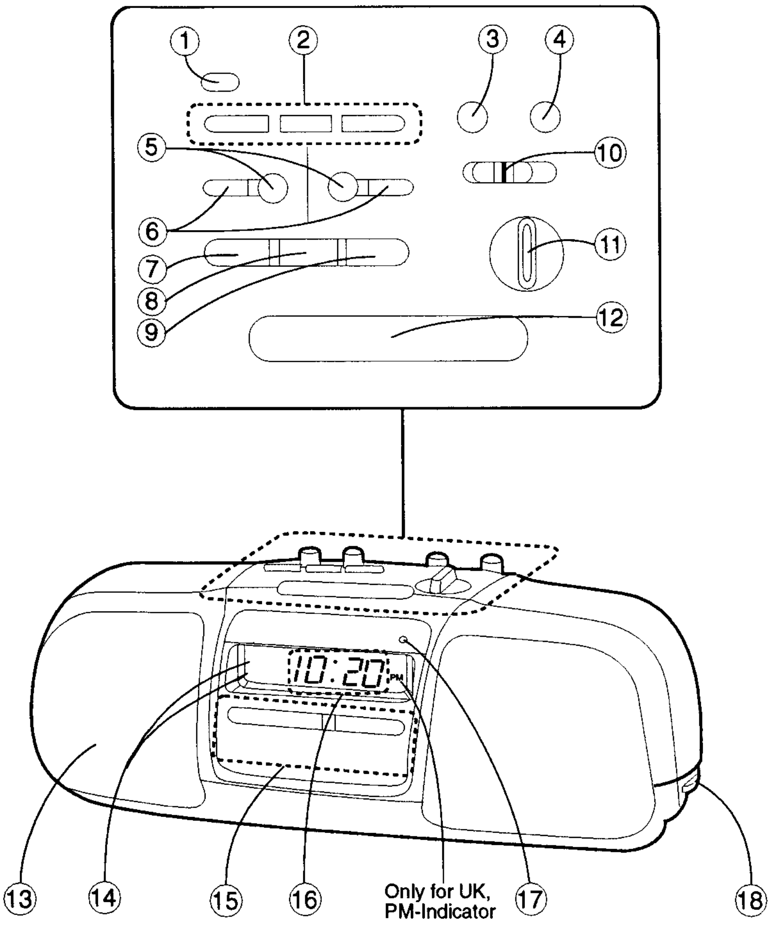
■ LOCATION OF CONTROLS

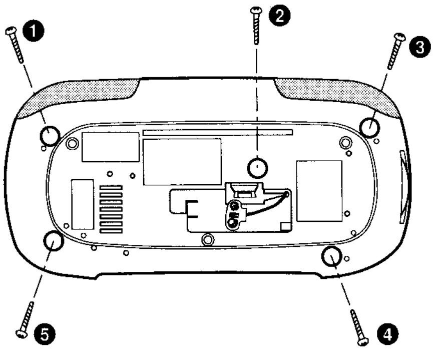


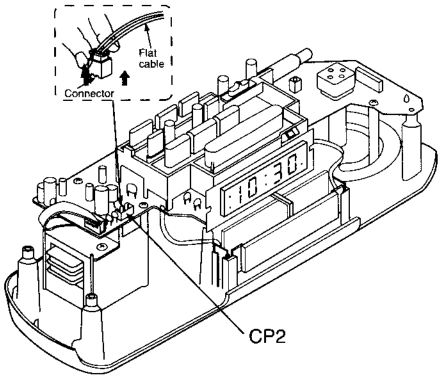


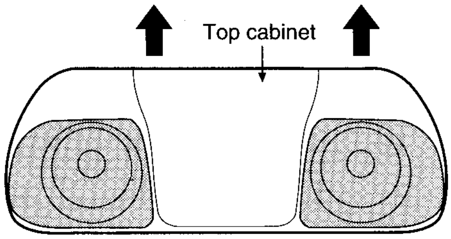
① Brightness selector (BRIGHTNESS)
② Time set buttons (TIME SET)
③ Surround button (SURROUND)
④ Tone button (TONE)
⑤ Alarm 1 (radio) and 2 (buzzer) select buttons
⑥ Alarm 1 and 2 display/adjust buttons (DISP/ADJ)
⑦ Sleep button (SLEEP)
⑧ Off/time set button (OFF TIME SET)
⑨ Radio button (RADIO)
⑩ Band selector (BAND)
⑪ Volume control (VOLUME)
⑫ Doze button (DOZE)
⑬ Speakers
⑭ Alarm 1 and 2 indicators
⑮ Radio dial display
⑯ Clock display
⑰ FM stereo indicator (FM ST)
⑱ Tuning control (TUNING)
⑲ Audio input jack (AUDIO IN)
⑳ Headphones jack (🎧)
㉑ FM antenna cord
㉒ AC power cord

■DISASSEMBLY INSTRUCTIONS

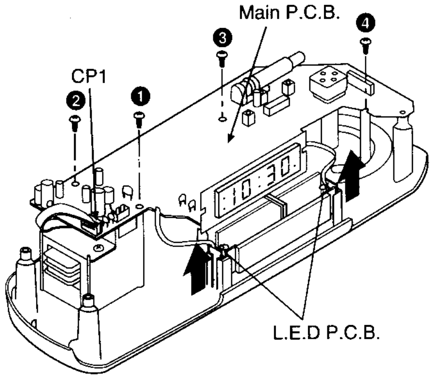
Ref. No. **1**	**Removal of the Top cabinet.**
Procedure **1**	1. Remove the 5 screws (❶ ~ ❺). 2. Remove the top cabinet in the direction of arrow. 3. Remove the connector CP2.



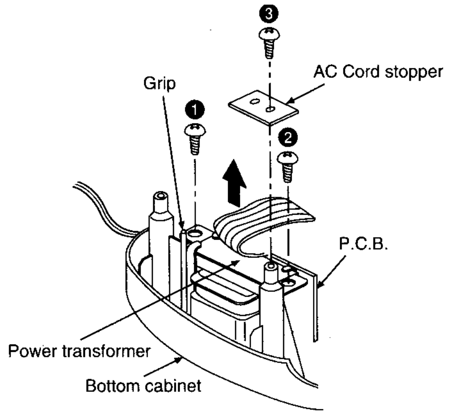

Flat cable
Connector
CP2


Top cabinet

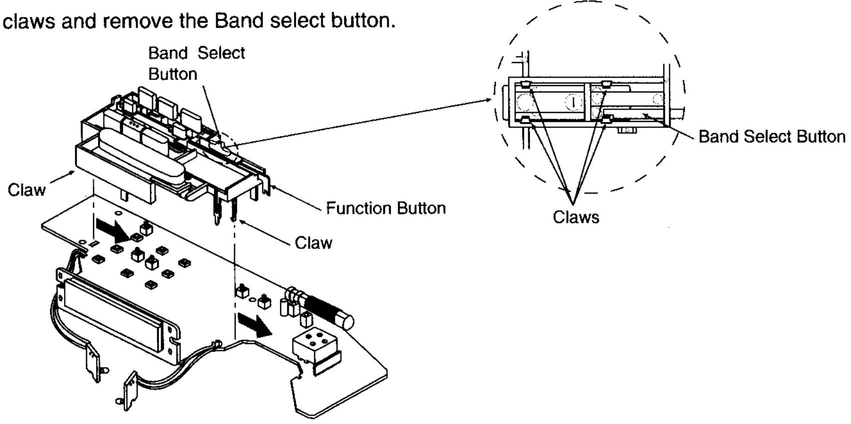
Ref. No. **2**	**Removal of the Main P.C.B. & L.E.D. P.C.B.**
Procedure **1→2**	1. Remove the 4 screws (❶ ~ ❹). 2. Remove the flat cable from connector (CP1). 3. Remove 2 L.E.D. P.C.B. in the direction of arrow. 4. Remove the main P.C.B.


Main P.C.B.
❹
❸
CP1
❷
❶
L.E.D P.C.B.

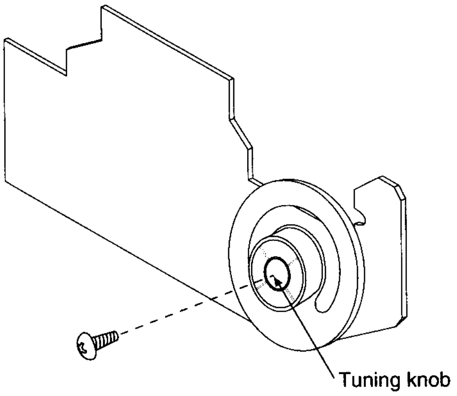
Ref. No. **3**	**Removal of the Power transformer.**
Procedure **1→2→3**	1. Remove the 3 screws (❶ ~ ❸) 2. Release the power cord from the grips. 3. Remove the AC cord stopper. 4. Remove the transformer in the direction of arrow.


❸
AC Cord stopper
Grip
❶
❷
P.C.B.
Power transformer
Bottom cabinet

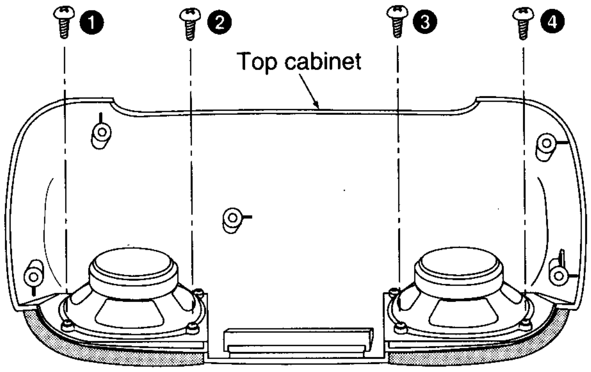
Ref. No. **4**	**Removal of the Function and Band select buttons.**
Procedure **1→2→3→4**	1. Release 2 claws and remove the function button. 2. Release 4 claws and remove the Band select button.


Band Select Button
Claw
Function Button
Claw
Band Select Button
Claws

Ref. No. 5	**Removal of the tuning knob.**
Procedure 1→2→5	• Remove 1 screw.


Tuning knob

Ref. No. 6	**Removal of the speakers.**
Procedure 1→6	• Remove 4 screws (❶ ~ ❹).


❶
❷
❸
❹
Top cabinet

Ref. No. 7	**Removal of the Front Panel.**
Procedure 1→7	1. Release 2 claws. 2. Remove the front panel in the direction of arrow.

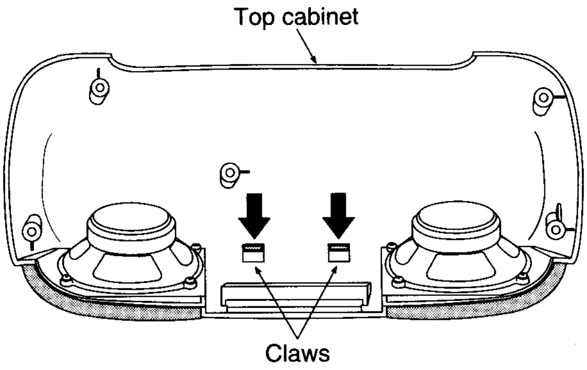

Top cabinet
Claws

Fig.1

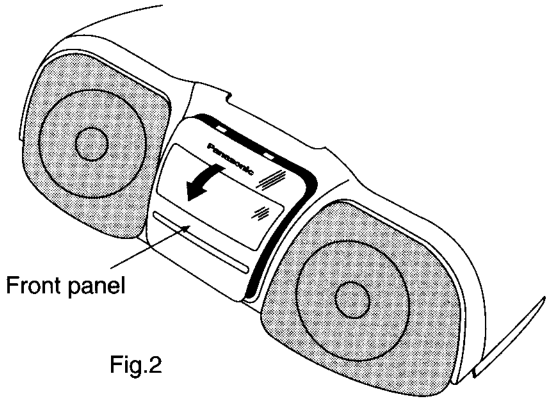

Front panel

Fig.2

• Dial Setting Point.

1. Move the dial pointer to "zero point" indicated on the bottom cabinet (Fig.1)

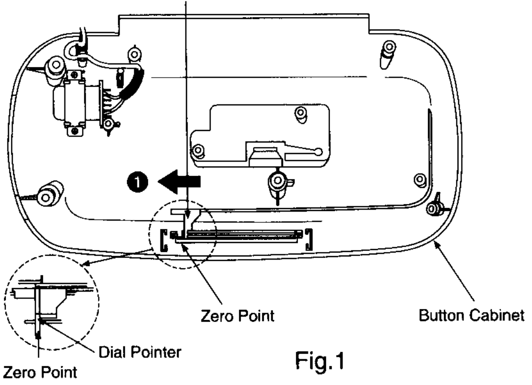

Dial pointer
❶
Zero Point
Button Cabinet
Dial Pointer
Zero Point

Fig.1

2. Turn the tuning knob fully anti-clockwise (Fig. 2).
3. Install the main P.C.B. onto the bottom cabinet.

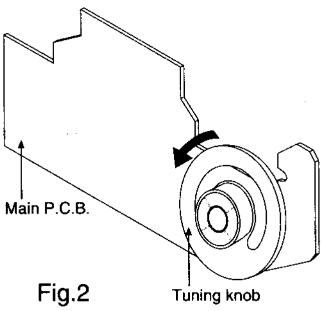
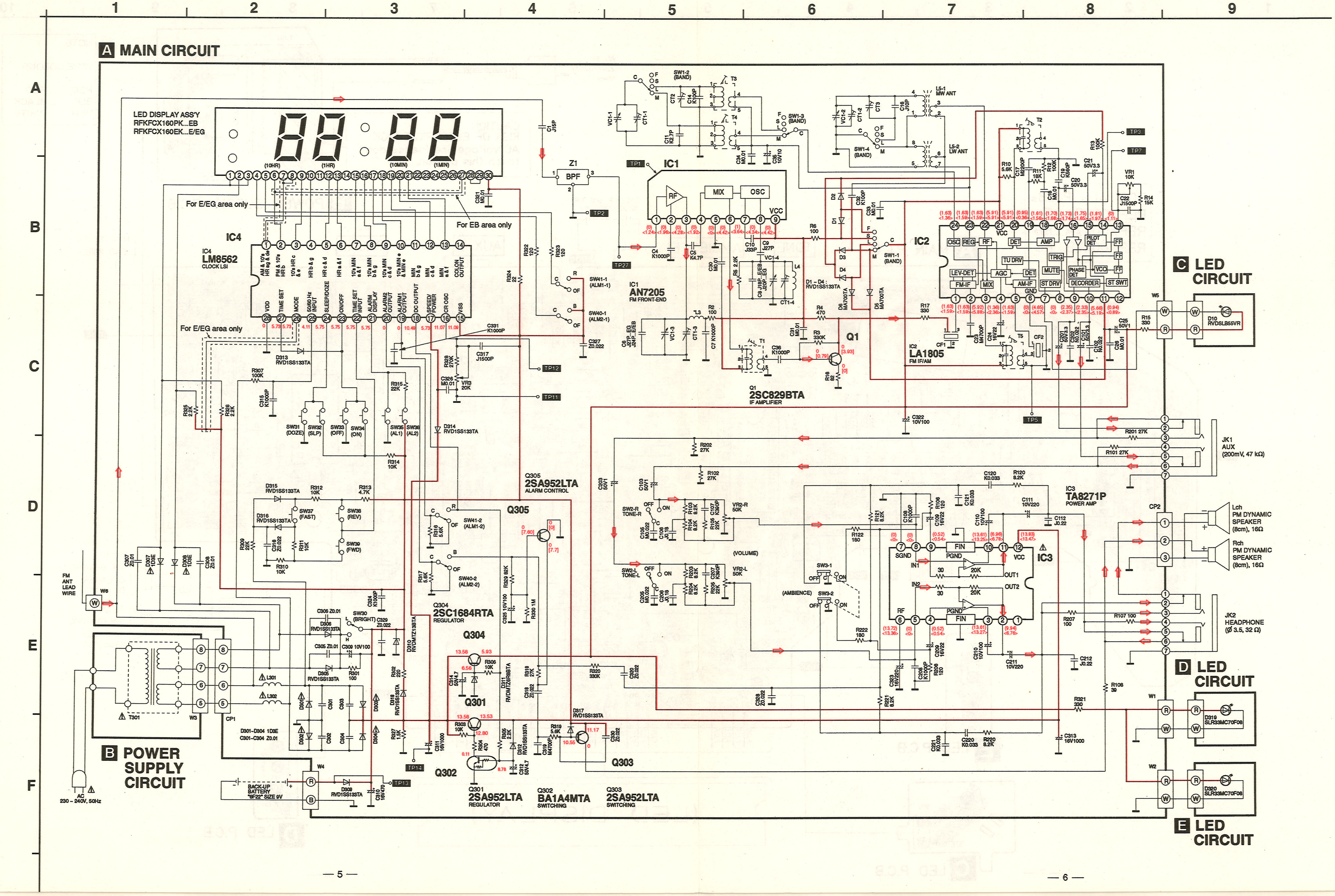
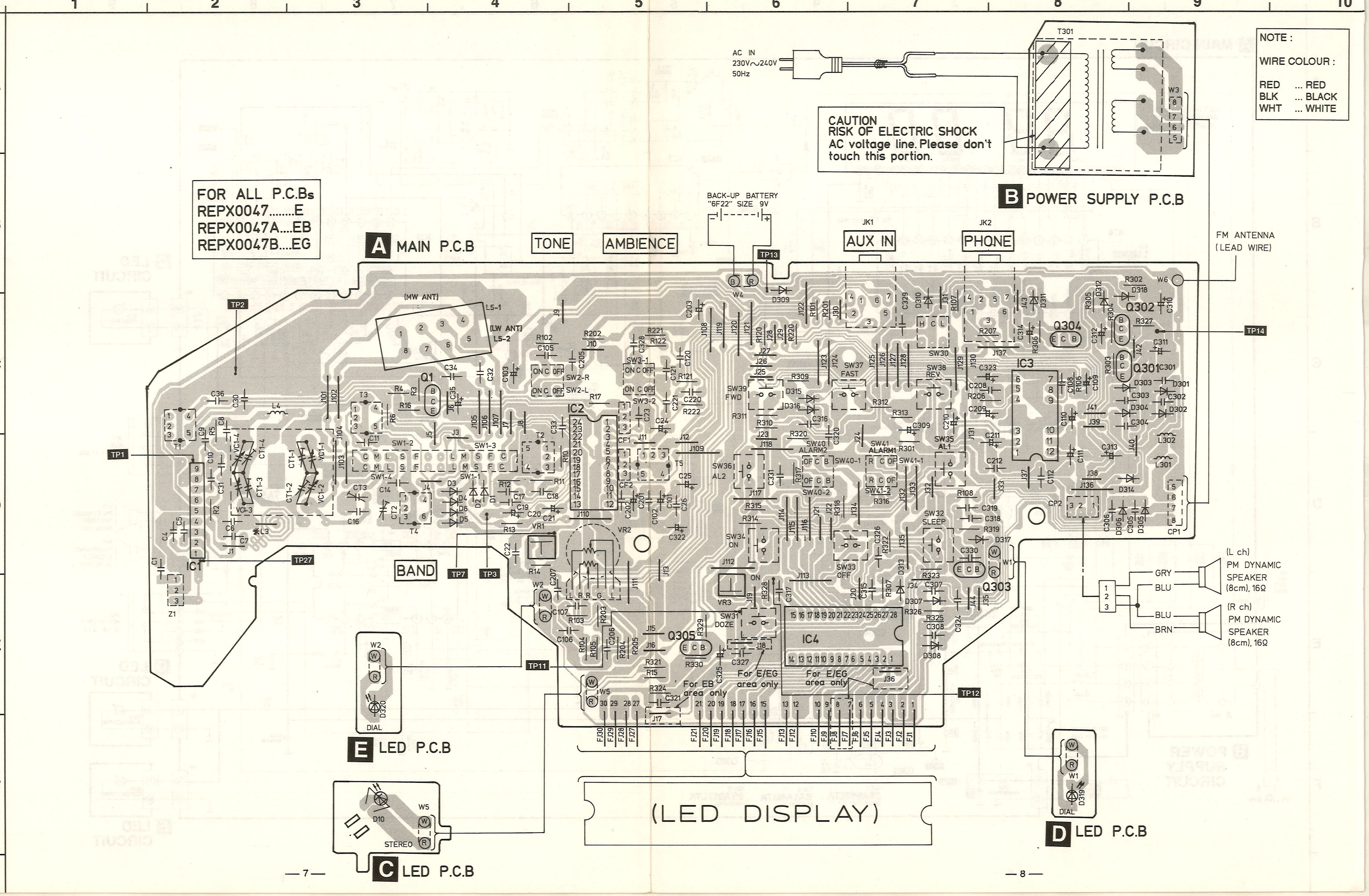

Main P.C.B.
Tuning knob

Fig.2

■ SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
A MAIN CIRCUIT
B POWER SUPPLY CIRCUIT
C LED CIRCUIT
D LED CIRCUIT
E LED CIRCUIT
LED DISPLAY ASS'Y
RFKFCX160PK...EB
RFKFCX160EK...E/EG
(10HR)
(1HR)
(10MIN)
(1MIN)
For E/EG area only
For EB area only
IC4
LM8562
CLOCK LSI
IC1
AN7205
FM FRONT-END
IC2
LA1805
FM IF/AM
IC3
TA8271P
POWER AMP
Q1
2SC829BTA
IF AMPLIFIER
Q301
2SA952LTA
REGULATOR
Q302
BA1A4MTA
SWITCHING
Q303
2SA952LTA
SWITCHING
Q304
2SC1684RTA
REGULATOR
Q305
2SA952LTA
ALARM CONTROL
Z1
BPF
MIX
OSC
RF
VCC
L5-1 MW ANT
L5-2 LW ANT
SW1-1 (BAND)
SW1-2 (BAND)
SW1-3 (BAND)
SW1-4 (BAND)
SW31 (DOZE)
SW32 (SLP)
SW33 (OFF)
SW34 (ON)
SW35 (AL1)
SW36 (AL2)
SW37 (FAST)
SW38 (REV)
SW39 (FWD)
SW30 (BRIGHT)
SW40-1 (ALM2-1)
SW40-2 (ALM2-2)
SW41-1 (ALM1-1)
SW41-2 (ALM1-2)
SW2-R TONE-R
SW2-L TONE-L
SW3-1
SW3-2
(AMBIENCE)
(VOLUME)
VR2-R 50K
VR2-L 50K
JK1
AUX
(200mV, 47 kΩ)
JK2
HEADPHONE
(Ø 3.5, 32 Ω)
Lch
PM DYNAMIC
SPEAKER
(8cm), 16Ω
Rch
PM DYNAMIC
SPEAKER
(8cm), 16Ω
CP1
CP2
W1
W2
W3
W4
W5
W6
T301
D301-D304 1D3E
C301-C304 Z0.01
BACK-UP BATTERY "6F22" SIZE 9V
AC 230 ~ 240V, 50Hz
FM ANT LEAD WIRE
D10 RVDSLB55VR
D319 SLR33MC70F08
D320 SLR33MC70F08
TP1
TP2
TP3
TP5
TP7
TP11
TP12
TP13
TP14
TP27
IN1
IN2
OUT1
OUT2
SGND
PGND
FIN
VCC
RF
OSC
REG
DET
AMP
TU DRV
AGC
MUTE
LEV-DET
FM-IF
MIX
AM-IF
ST DRV
DECORDER
ST SWT
PHASE DET
VCO
PILOT DET
TRIG
GND
FF

P.C.B. AND WIRING CONNECTION


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
A MAIN P.C.B
B POWER SUPPLY P.C.B
C LED P.C.B
D LED P.C.B
E LED P.C.B
AC IN 230V～240V 50Hz
T301
W3
BACK-UP BATTERY "6F22" SIZE 9V
TONE
AMBIENCE
AUX IN
PHONE
JK1
JK2
FM ANTENNA (LEAD WIRE)
(MW ANT)
(LW ANT)
L5-1
L5-2
BAND
IC1
IC2
IC3
IC4
Q1
Q301
Q302
Q303
Q304
Q305
TP1
TP2
TP3
TP7
TP11
TP12
TP13
TP14
TP27
SW37 FAST
SW38 REV
SW39 FWD
SW40 ALARM2
SW41 ALARM1
SW35 AL1
SW36 AL2
SW32 SLEEP
SW33 OFF
SW34 ON
SW31 DOZE
VR1
VR2
VR3
For EB area only
For E/EG area only
For E/EG area only
(L ch) PM DYNAMIC SPEAKER (8cm), 16Ω
(R ch) PM DYNAMIC SPEAKER (8cm), 16Ω
GRY
BLU
BLU
BRN
DIAL
DIAL
STEREO
D10
D319
D320
W1
W2
W5
(LED DISPLAY)

NOTE :

WIRE COLOUR :

RED ... RED
BLK ... BLACK
WHT ... WHITE

CAUTION
RISK OF ELECTRIC SHOCK
AC voltage line. Please don't touch this portion.

FOR ALL P.C.Bs
REPX0047........E
REPX0047A....EB
REPX0047B....EG

NOTES:

- SW1-1, SW1-2 : Band select switch in "MW" position. (F...FM, S...FM ST, L...LW, M...MW), (BAND)
- SW2-L, SW2-R : Tone select switch in "OFF" position. (TONE)
- SW3-1, SW3-2 : Ambience select switch in "OFF" position. (SURROUND)
- SW30 : Brightness select switch in "LOW" position. (H...HIGH, L...LOW), (BRIGHTNESS)
- SW31 : Doze switch. (DOZE)
- SW32 : Sleep switch. (SLEEP)
- SW33 : Off / time set switch. (OFF TIME SET)
- SW34 : Radio on switch. (RADIO)
- SW35 : Alarm 1 display / adjust switch (DISP/ADJ)
- SW36 : Alarm 2 display / adjust switch (DISP/ADJ)
- SW37 : Time set switch. (FAST)
- SW38 : Time set switch. (REV)
- SW39 : Time set switch. (FWD)
- SW40-1, SW40-2 : Alarm 2 in "OFF" position. (OF..OFF, B...BUZZER)
- SW41-1, SW41-2 : Alarm 1 in "OFF" position. (OF...OFF, R...RADIO)

- Current consumption:

Vol. min............	0.03mA	(FM)
	0.03mA	(AM)
Vol. max...........	0.24mA	(FM)
	0.20mA	(AM)

⇨ ... FM SIGNAL LINE

▬ ... +B LINE

(Measurement condition:
Radio : FM 60 dB, 30%mod
AM 74 dB/m, 30%mod)

- * L3 are printed coils formed on the P.C.B and thus not found in the Replacement Parts list.

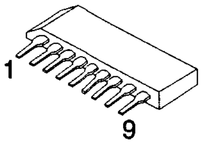
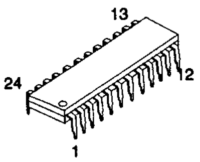
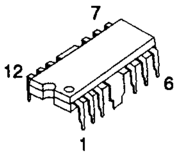
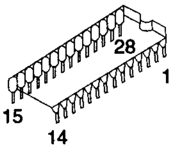
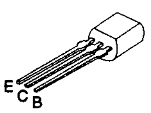
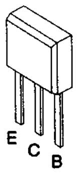
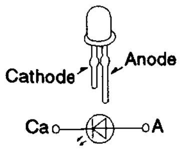
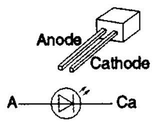
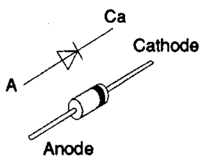
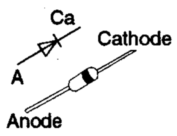
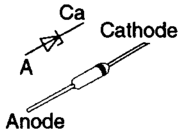
- The voltage value are the reference voltage of this unit measured by DC electronic voltmeter (high impedance). Accordingly, there may arise some error in voltage values depending upon the internal impedance of the tester or the measuring unit.

NO MARK... RADIO ON < > ... FM ( ) ... AM
[ ] ... ALARM ON

- Important Safety Notice:
Component identified by ⚠ have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

- **This schematic diagram may be modified at anytime with the development of new technology.**

■TERMINAL GUIDE OF ICs, TRANSISTORS & DIODES

AN7205 	LA1805 	TA8217P 	LM8562 	2SA952LTA 2SC1684RTA 2SA829BTA 	BA1A4MTA 
SLR33MC70F08 	RVDSLB55VR 	1D3E 	RVD1SS133TA MA700TA 	RVDMTZ13BTA RVDMTZ6R8BTA 	

■ MEASUREMENTS AND ADJUSTMENTS

• ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

- Set power source voltage to 230 ~ 240 V AC.
- Set volume control to maximum
- Set band switch to MW, LW or FM
- Set radio on switch to ON
- Set surround switch to OFF
- Output of signal generator should be no higher than necessary to obtain an output reading.
- For AM alignment, please perform MW alignment first before proceed to LW alignment.

• AM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	459 kHz 30 % Mod. at 400 Hz	Point of non-interference.(on/about 600kHz)	Headphone Jack (32Ω) (Fabicate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument.)	T5(AM IFT)	Adjust for maximum output.

• MW-RF ALIGNMENT

〃	511 kHz...E/EB 514 ± 5 kHz...EG	Tuning capacitor fully closed.	〃	T3 (MW OSC Coil)	Adjust for maximum output.
〃	1650 kHz...E/EB 1639 ± 7 kHz...EG	Tuning capacitor fully opened.	〃	CT1-1 (MW OSC Trimmer)	Adjust for maximum output.
〃	550 kHz	Tune to signal	〃	[*1] L5-1(MW ANT Coil)	Adjust for maximum output. Adjust L5-1 by moving coil bobbin along ferrite core.
〃	1500 kHz	〃	〃	CT1-2 (MW ANT Trimmer)	Adjust for maximum output.
[*1] Fix antenna coil with wax after completing alignment.					

• LW-RF ALIGNMENT

〃	143 kHz...E/EB 140 ± 5 kHz...EG	Tuning capacitor fully closed.	〃	T4 (LW OSC Coil)	Adjust for maximum output.
〃	297 kHz...E/EB 293 ± 5 kHz...EG	Tuning capacitor fully opened.	〃	CT2 (LW OSC Coil)	Adjust for maximum output.
〃	150 kHz	Tune to signal	〃	[*2] L5-2 (LW ANT Coil)	Adjust for maximum output. Adjust L5-2 by moving coil bobbin along ferrite core.
〃	280 kHz	〃	〃	CT3 (LW ANT Coil)	Adjust for maximum output.
[*2] Fix antenna coil with wax after completing alignment.					

• FM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Connect to test point TP1 through ceramic capacitor. Negative side to test point TP2 .	10.7 MHz (Sweep)	Point of non-interference.(on/about 90 MHz)	Connect vert. amp. of scope to test point TP3 . Negative side to test point TP5 .	T1(FM 1st)	Waveform is shown in Fig. 3
〃	〃	〃	〃	T2(FM 2nd)	Waveform is shown in Fig. 4

• FM-RF ALIGNMENT

Connect to test point **TP27** through FM dummy antenna. Negative side to test point **TP2** .	86.2MHz...E/EB 87.35MHz ± 70kHz ...EG	Variable capacitor fully closed.	Headphone Jack (32Ω) (Fabicate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument.)	L4 (FM OSC Coil)	[*3] Adjust for maximum output.
	109.2MHz...E/EB 108.3MHz ± 100kHz ...EG	Variable capacitor fully opened.	"	CT1-4 (FM OSC Trimmer)	"
	106MHz	Tune to signal	"	CT1-3 (FM ANT Trimmer)	"
[*3] Three output response will be present; proper tuning is the center frequency.					

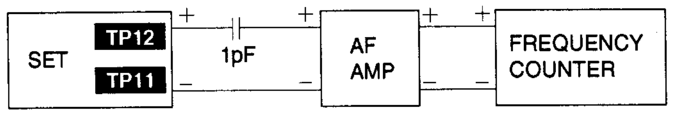
• FM VCO ALIGNMENT

FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	SPECIFICATION	ADJUSTMENT POINT	REMARKS
98 MHz, 60 dB connect to test point **TP27** through FM dummy antenna. Negative side to **TP2** .	Fig. 5	76 kHz	VR1	Adjust VR1 for 76 kHz ± 100 Hz reading on frequency counter.

• BATTERY BACK-UP CIRCUIT ADJUSTMENT (NOTE : Disconnect AC power cord)

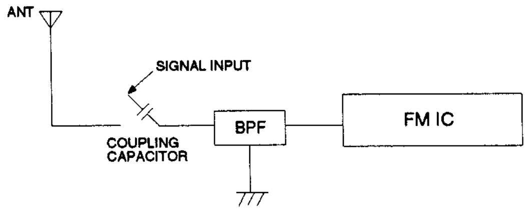
DC POWER SUPPLY		FREQUENCY COUNTER	ADJUSTMENT POINT	REMARKS
CONNECTIONS	VOLTAGE			
(+) Side... **TP13** (–) Side... **TP14**	9V	(+) Side... **TP12** (–) Side... **TP11**	VR3	Adjust VR3 for 2400 ± 15 Hz on frequency counter reading. [*4, 5, 6]

[*4] Connect 1 pF capacitor to the test point **TP12** .
[*5] Amplify its output signal by using AF Amp.
[*6] Measure the frequency.


SET
TP12
TP11
+
–
1pF
AF AMP
FREQUENCY COUNTER

• FM DATA MEASUREMENT

Note: The FM IC (Mixer) has to be isolated from the antenna when doing FM measurement.
(1) De-soldered one connection of coupling capacitor that is connected to the antenna.
(2) Input the signal directly to the coupling capacitor.
(3) Solder back the capacitor after the data has been taken.


ANT
SIGNAL INPUT
COUPLING CAPACITOR
BPF
FM IC

• ADJUSTMENT POINTS

Please refer to Circuit Board and Wiring Connection Diagram for test points location.

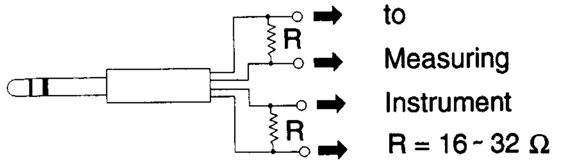

R
R
to
Measuring
Instrument
R = 16 ~ 32 Ω

Fig. 2

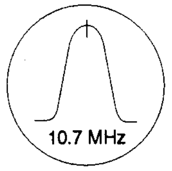


Fig.3

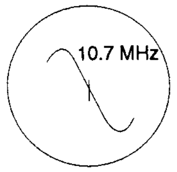


Fig. 4

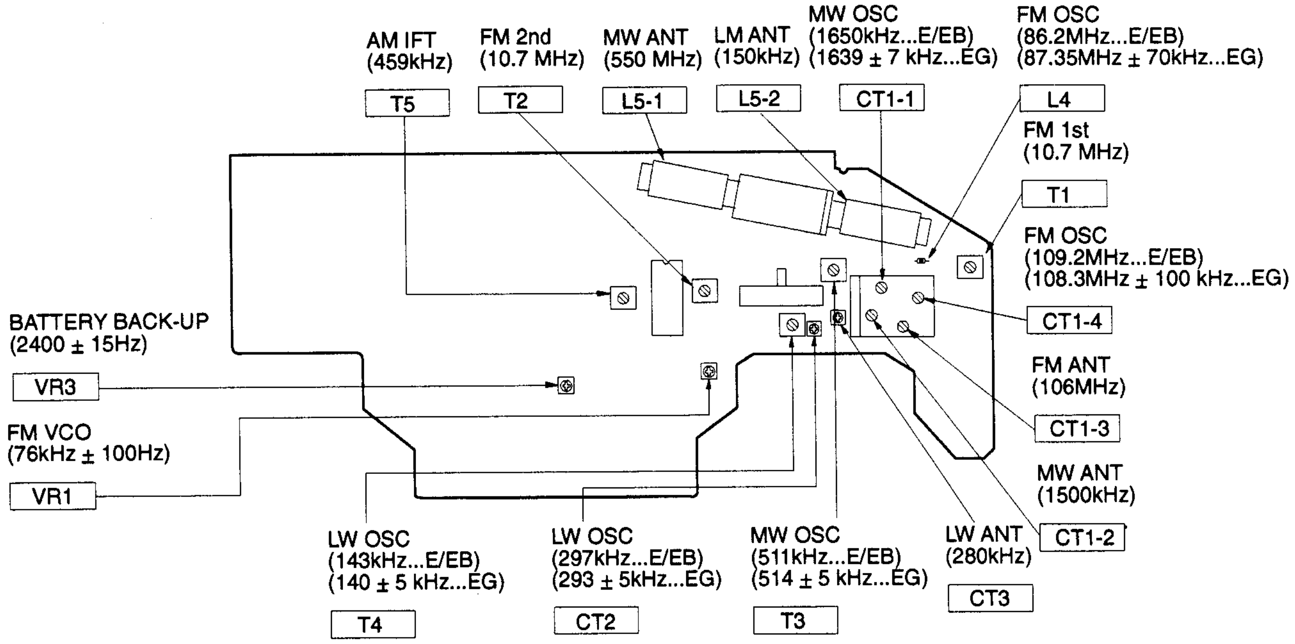

AM IFT (459kHz)
T5
FM 2nd (10.7 MHz)
T2
MW ANT (550 MHz)
L5-1
LM ANT (150kHz)
L5-2
MW OSC (1650kHz...E/EB) (1639 ± 7 kHz...EG)
CT1-1
FM OSC (86.2MHz...E/EB) (87.35MHz ± 70kHz...EG)
L4
FM 1st (10.7 MHz)
T1
FM OSC (109.2MHz...E/EB) (108.3MHz ± 100 kHz...EG)
CT1-4
FM ANT (106MHz)
CT1-3
MW ANT (1500kHz)
CT1-2
BATTERY BACK-UP (2400 ± 15Hz)
VR3
FM VCO (76kHz ± 100Hz)
VR1
LW OSC (143kHz...E/EB) (140 ± 5 kHz...EG)
T4
LW OSC (297kHz...E/EB) (293 ± 5kHz...EG)
CT2
MW OSC (511kHz...E/EB) (514 ± 5 kHz...EG)
T3
LW ANT (280kHz)
CT3

Fig. 1

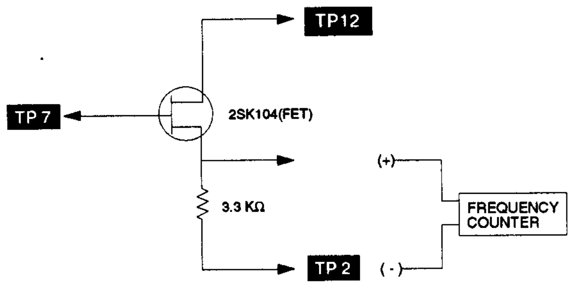
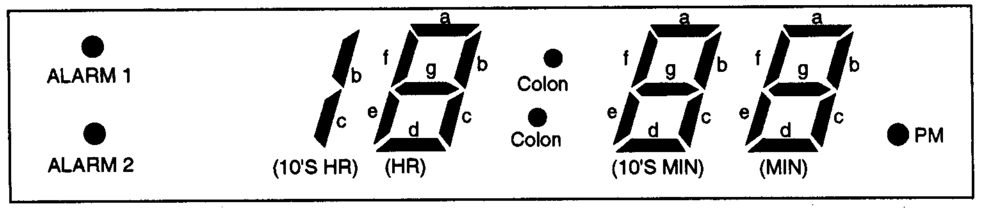
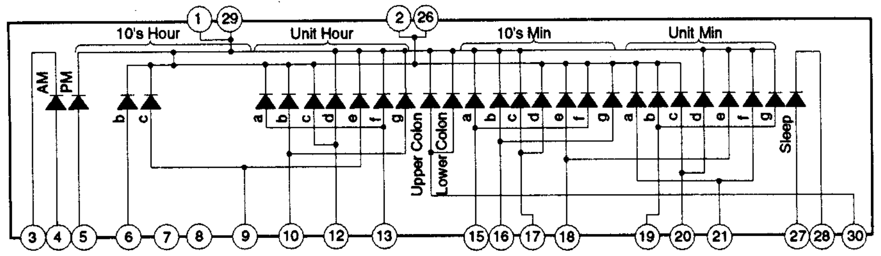

TP12
TP 7
2SK104(FET)
(+)
3.3 KΩ
FREQUENCY COUNTER
TP 2
(-)

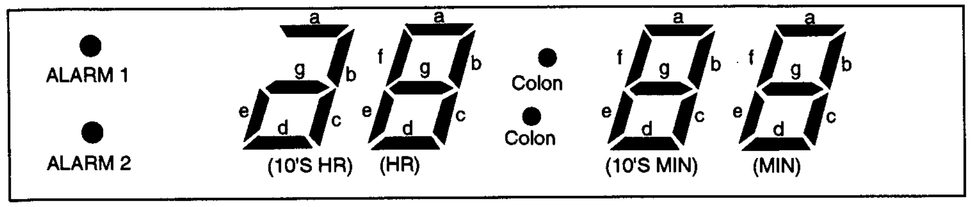
Fig. 5

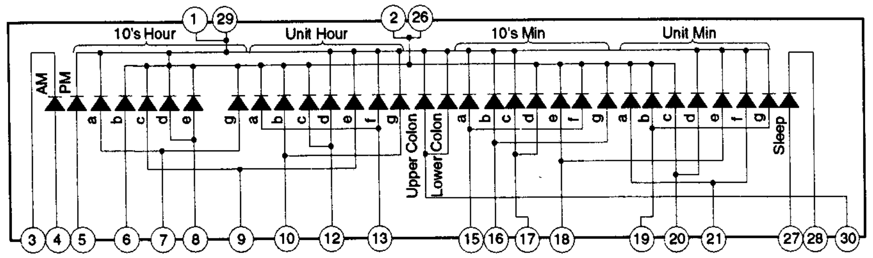
■ DESCRIPTION OF DISPLAY


ALARM 1
ALARM 2
a
b
c
d
e
f
g
Colon
Colon
PM
(10'S HR)
(HR)
(10'S MIN)
(MIN)


10's Hour
Unit Hour
10's Min
Unit Min
AM
PM
a
b
c
d
e
f
g
Upper Colon
Lower Colon
Sleep
1
29
2
26
3
4
5
6
7
8
9
10
12
13
15
16
17
18
19
20
21
27
28
30

RFKCX160PK . . . . FOR EB AREA ONLY


ALARM 1
ALARM 2
a
b
c
d
e
f
g
Colon
Colon
(10'S HR)
(HR)
(10'S MIN)
(MIN)

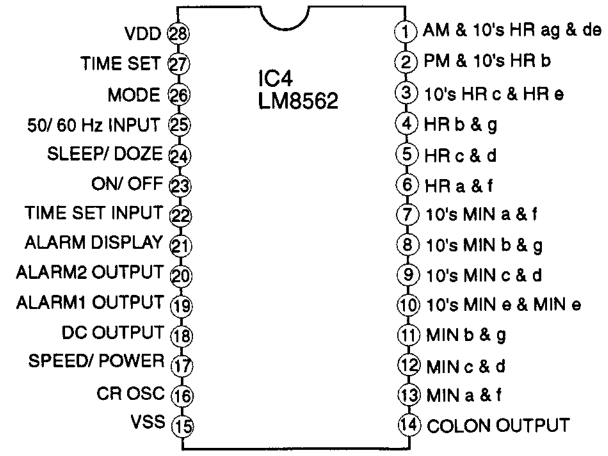

10's Hour
Unit Hour
10's Min
Unit Min
AM
PM
Upper Colon
Lower Colon
Sleep
1
29
2
26
3
4
5
6
7
8
9
10
12
13
15
16
17
18
19
20
21
27
28
30

RFKCX160EK . . . . FOR E/EG AREA ONLY

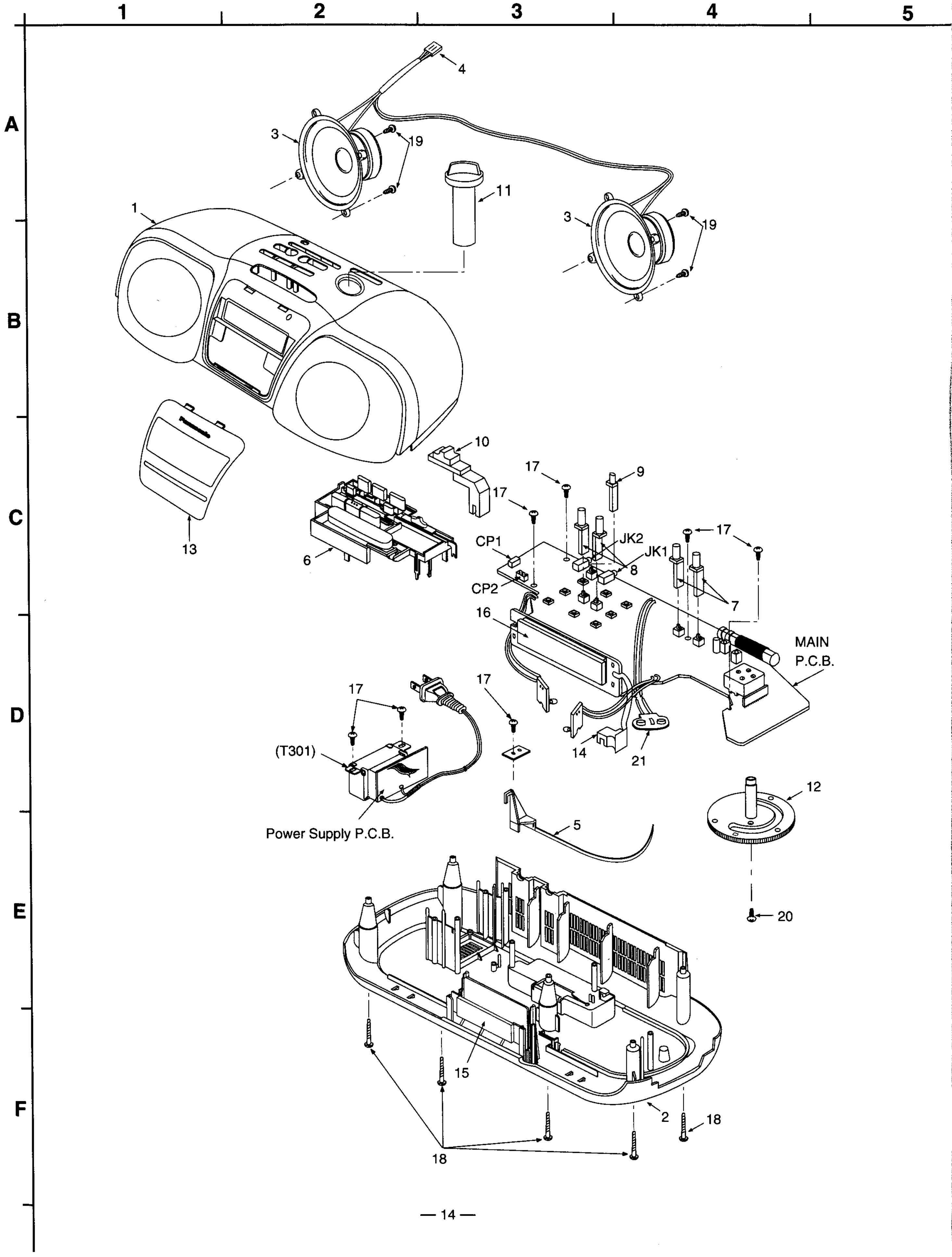
■ FUNCTION OF IC TERMINALS

- **IC4 (LM8562)**

Pin No.	Terminal Name	I/O	Function
1 ~ 13	Segment signal output	O	Output terminals for segment drive signals
14	Colon output	—	Not used.
15	Vss	I	Power supply input.
16	CR OSC	O	Outputs an oscillating signal source necessary for the time base during back-up operation and operates the time counter. Also functions as an alarm tone signal. (OSC frequency = 2.4 kHz)
17	SPEED/ POWER	I	Vss for AC operation.
18	DC OUTPUT	O	When radio on signal is received or generates at IC 4, this pin will send a high signal to the radio +B voltage control circuit (Q304).
19,20	19... ALARM1 OUTPUT 20... ALARM2 OUTPUT	O	Outputs an alarm signal ("H" level) when alarm time matches the current time. When this pin is momentarily grounded (V_{DD}) the alarm output stops.
21	ALARM DISPLAY	I	When a high signal is applied to this pin, the contents of alarm 2 is displayed and the setting input is enabled. When a low signal is applied, the above applies instead to alarm 1.
22	TIME SET INPUT	I	Applying a signal to this pin causes the value of the current time of alarm time to increment. If the input voltage is Vss, the time decreases. If the input voltage is V_{DD}, the time increases. If the input voltage is a pulse signal (caused by depressing the switch SW37), the speed increases.
23	ON/OFF	I	By turning on SW34, the input is Vss (high signal) and the mode switches to Radio on mode. By turning on SW33, the input is V_{DD} (low signal) and the mode is now switch to the Radio off mode.
24	SLEEP/DOZE	I	By turning on SW32, the input is Vss (high signal) and the mode switches to sleep mode. By turning on SW33, the input is V_{DD} (low signal) and the mode is now switch to the doze mode.
25	50/60 Hz INPUT	I	Input terminal for noise filter circuit.
26	MODE	I	Terminal to input mode selection V_{DD} : 12-hour, 60 Hz OPEN : 12-hour, 50 Hz Vss : 24-hour, 50 Hz
27	TIME SET	I	Input terminal for time setting and dimmer adjustment modes. V_{SS} : Dimmer (Time lock) OPEN : Bright (Time lock) V_{DD} : Bright (Time set)
28	VDD	—	Ground terminal.


IC4
LM8562
VDD ㉘
TIME SET ㉗
MODE ㉖
50/ 60 Hz INPUT ㉕
SLEEP/ DOZE ㉔
ON/ OFF ㉓
TIME SET INPUT ㉒
ALARM DISPLAY ㉑
ALARM2 OUTPUT ⑳
ALARM1 OUTPUT ⑲
DC OUTPUT ⑱
SPEED/ POWER ⑰
CR OSC ⑯
VSS ⑮
① AM & 10's HR ag & de
② PM & 10's HR b
③ 10's HR c & HR e
④ HR b & g
⑤ HR c & d
⑥ HR a & f
⑦ 10's MIN a & f
⑧ 10's MIN b & g
⑨ 10's MIN c & d
⑩ 10's MIN e & MIN e
⑪ MIN b & g
⑫ MIN c & d
⑬ MIN a & f
⑭ COLON OUTPUT

■ CABINET PARTS LOCATION


1
2
3
4
5
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
CP1
CP2
JK1
JK2
MAIN P.C.B.
(T301)
Power Supply P.C.B.

■ REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.
When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.
* The parenthesized indications in the Remarks columns specify the areas and colours. (Refer to the cover page for area and colour)
Parts without these indications can be used for all areas and colours.
* [M] Indicates in the Remarks columns indicates parts supplied by **MESA.**

Ref No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RFKKCX230EW	TOP CAB. ASS'Y	[M] (W)
1	RFKKCX230EK	TOP CAB. ASS'Y	[M] (K)
2	RKSX0013A-W	BOTTOM CABINET	[M] (W) (E)
2	RKSX0013A-H	BOTTOM CABINET	[M] (K) (E)
2	RFKHCX230EBW	BOTTOM CABINET ASS'Y	[M] (W) (EB)
2	RFKHCX230EBK	BOTTOM CABINET ASS'Y	[M] (K) (EB)
2	RFKHCX230EGW	BOTTOM CABINET ASS'Y	[M] (W) (EG)
2	RFKHCX230EGK	BOTTOM CABINET ASS'Y	[M] (K) (EG)
3	EASJ8P04A3	WOOFER	[M]
4	REXX0062	WIRE ASS'Y, SPEAKER	[M]
5	RGJX0008-W	POINTER	[M]
6	RGUX0035-W	BUTTON, FUNCTION	[M] (W)
6	RGUX0035-H	BUTTON, FUNCTION	[M] (K)
7	RGUX0036-W	BUTTON, SURR/TONE	[M] (W)
7	RGUX0036-H	BUTTON, SURR/TONE	[M] (K)
8	RGUX0038-W	BUTTON, AL ON/OFF	[M] (W)
8	RGUX0038-H	BUTTON, AL ON/OFF	[M] (K)
9	RGUX0039-W	BUTTON, BRIGHTNESS	[M] (W)
9	RGUX0039-H	BUTTON, BRIGHTNESS	[M] (K)
10	RGVX0010-W	KNOB, BAND SELECT	[M] (W)
10	RGVX0010-H	KNOB, BAND SELECT	[M] (K)
11	RGWX0012-W	KNOB, VOLUME	[M] (W)
11	RGWX0012-H	KNOB, VOLUME	[M] (K)
12	RGXX0008-W	KNOB, TUNING	[M] (W)
12	RGXX0008-H	KNOB, TUNING	[M] (K)
13	RKWX0024A-K	DIAL PANEL	[M] (E/EB)
13	RKWX0024B-K	DIAL PANEL	[M] (EG)
14	RMNX0001-K	LED HOLDER	[M]
15	RMQX0008	LIGHT REFLECTOR	[M]
16	RFKFCX160EK	LED DISPLAY ASS'Y	[M] (E/EG)
16	RFKFCX160PK	LED DISPLAY ASS'Y	[M] (EB)
17	XTV3+12G-M	SCREW (PCB & TRANS)	
18	XTV3+20G-M	SCREW (CASING)	[M]
19	XTV3+8G-M	SCREW (SPEAKER)	
20	XYN26+C8	SCREW (V.C.)	
21	RJB5009WA-1	WIRE ASS'Y, BATTERY	[M]

Ref No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS	
IC1	AN7205	IC, FM FRONT END	
IC2	LA1805	IC, FM IF/AM	[M]
IC3	TA8217P	IC, POWER AMP	[M] ⚠
IC4	LM8562	IC, CLOCK LSI	[M]
		TRANSISTORS	
Q1	2SC829BTA	TRANSISTOR	
Q301	2SA952LTA	TRANSISTOR	[M]
Q302	BA1A4MTA	TRANSISTOR	[M]
Q303	2SA952LTA	TRANSISTOR	[M]
Q304	2SC1684RTA	TRANSISTOR	
Q305	2SA952LTA	TRANSISTOR	[M]
		DIODES	
D1	RVD1SS133TA	DIODE	
D2	RVD1SS133TA	DIODE	
D3	RVD1SS133TA	DIODE	
D4	RVD1SS133TA	DIODE	
D5	MA700TA	DIODE	
D6	MA700TA	DIODE	
D10	RVDSLB55VR	DIODE	[M]
D301	1D3E	DIODE	[M] ⚠
D302	1D3E	DIODE	[M] ⚠
D303	1D3E	DIODE	[M] ⚠
D304	1D3E	DIODE	[M] ⚠
D305	RVD1SS133TA	DIODE	
D306	RVD1SS133TA	DIODE	
D307	1D3E	DIODE	[M] ⚠
D308	1D3E	DIODE	[M] ⚠
D309	RVD1SS133TA	DIODE	
D310	RVDMTZ13BTA	DIODE	
D311	RVDMTZ6R8BTA	DIODE	
D312	RVD1SS133TA	DIODE	
D313	RVD1SS133TA	DIODE	
D314	RVD1SS133TA	DIODE	
D315	RVD1SS133TA	DIODE	
D316	RVD1SS133TA	DIODE	

Ref No.	Part No.	Part Name & Description	Remarks
D317	RVD1SS133TA	DIODE	
D318	RVD1SS133TA	DIODE	
D319	SLR33MC70F08	DIODE	[M]
D320	SLR33MC70F08	DIODE	[M]
		VARIABLE RESISTORS	
VR1	EVNDXAA00B14	VR, 10 KHZ	
VR2	EVJVCAF15A54	VR, VOLUME	[M]
VR3	EVNDXAA00B25	VR, CLOCK OSC	
		VARIABLE CAPACITORS	
VC1	RCV4PCT0V-R	TRIMMER	[M]
CT2	ECRLA030E53R	TRIMMER	
CT3	ECRLA030E53R	TRIMMER	
		SWITCHES	
SW1	RSS4D001-Q	SW, BAND	[M]
SW2	ESB6483	SW, TONE	[M]
SW3	ESB6483	SW, AMBIENCE	[M]
SW30	ESB6483	SW, BRIGHTNESS	[M]
SW31	EVQ21405R	SW, DOZE	
SW32	EVQ21405R	SW, SLEEP	
SW33	EVQ21405R	SW, OFF	
SW34	EVQ21405R	SW, RADIO ON	
SW35	EVQ21405R	SW, AL1 DISPLAY/ADJ	
SW36	EVQ21405R	SW, AL2 DISPLAY/ADJ	
SW37	EVQ21405R	SW, TIME SET (FAST)	
SW38	EVQ21405R	SW, TIME SET (REV)	
SW39	EVQ21405R	SW, TIME SET (FWD)	
SW40	ESB6483	SW, ALARM2	[M]
SW41	ESB6483	SW, ALARM1	[M]
		CONNECTORS	
CP1	RJS4T5ZA	CONNECTOR (4P)	
CP2	RJP3G4YA	CONNECTOR (3P)	
		COILS & TRANSFORMERS	
L4	RL04Y209-E	COIL, FM OSC	[M] (E/EB)
L4	RL04P002-E	COIL, FM OSC	[M] (EG)
L5	RLV6C008-0	COIL, AM ANT	[M]
L301	RLQY30S4W	COIL, RF CHOKE	[M] ⚠
L302	RLQY30S4W	COIL, RF CHOKE	[M] ⚠
T1	RLI4B153-M	FM IF	
T2	RLI4B153-M	FM IF	

Ref No.	Part No.	Part Name & Description	Remarks
T3	RL02B105-M	AM OSC	
T4	RL01B13-M	LW OSC	
T5	RLI2B471-M	AM IF	[M]
T301	RTP1J2B003-X	POWER TRANSFORMER	[M] ⚠
		COMPONENT COMBINATION	
Z1	RCRBMT002-H	COMPONENT COMBINATION	
		CERAMIC FILTERS	
CF1	RVF107WDZT	FM CF	
CF2	RVFSFU459B	AM CF	
		JACKS	
JK1	RJJD7S2YA-C	JACK, LINE IN	
JK2	RJJD7S2YA-C	JACK, PHONE	
		PACKING MATERIALS	
P1	RPGX0078	GIFT BOX	[M] (W) (E/EG)
P1	RPGX0077	GIFT BOX	[M] (K) (E/EG)
P1	RPGX0083	GIFT BOX	[M] (W) (EB)
P1	RPGX0082	GIFT BOX	[M] (K) (EB)
P2	RPH614ZA	MIRAMAT BAG	[M]
P3	RPNX0014	POLYFOAM	[M]
P4	RPQX0006	PAD	[M] (EB)
		ACCESSORIES	
A1	RFKSCX230EK	INSTR MNL ASS'Y	[M] (E)
A1	RQT2015-B	INSTRUCTION MANUAL	[M] (EB)
A1	RQT1925-D	INSTRUCTION MANUAL	[M] (EG)
A2	RJA23YB-U	AC CORD	[M] (E/EG) ⚠
A2	RJA0039-U	AC CORD	[M] (EB) ⚠
A3	RJP0F31ZA	AUXILIARY JACK	[M]

RESISTORS & CAPACITORS

Notes :
* Capacitor values are in microfarads (µF) unless specified otherwise, P=Pico-farads (pF) F=Farads
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).
* Bracketed indications in Ref. No. columns specify the area (Refer to the first page for area).
Parts without these indications can be used for all areas.
* [M] Indicates in the values & remarks column indicates parts supplied by **MESA**

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R2	ERDS2TJ101T	100 1/4W
R3	ERDS2TJ334T	330K 1/4W
R4	ERDS2TJ471T	470 1/4W
R5	ERDS2TJ222T	2.2K 1/4W
R6	ERDS2TJ101T	100 1/4W
R10	ERDS2TJ562T	5.6K 1/4W
R11	ERDS2TJ183T	18K 1/4W
R12	ERDS2TJ104T	100K 1/4W
R13	ERDS2TJ104T	100K 1/4W
R14	ERDS2TJ153T	15K 1/4W
R15	ERDS2TJ331T	330 1/4W
R16	ERDS2TJ820T	82 1/4W
R17	ERDS2TJ331T	330 1/4W
R101	ERDS2TJ273T	27K 1/4W
R102	ERDS2TJ273T	27K 1/4W
R103	ERDS2TJ822T	8.2K 1/4W
R104	ERDS2TJ822T	8.2K 1/4W
R105	ERDS2TJ223T	22K 1/4W
R106	ERDS2TJ121T	120 1/4W
R107	ERDS2TJ101T	100 1/4W
R108	ERDS2TJ390T	39 1/4W
R120	ERDS2TJ822T	8.2K 1/4W
R121	ERDS2TJ822T	8.2K 1/4W
R122	ERDS2TJ181T	180 1/4W
R201	ERDS2TJ273T	27K 1/4W
R202	ERDS2TJ273T	27K 1/4W
R203	ERDS2TJ822T	8.2K 1/4W
R204	ERDS2TJ822T	8.2K 1/4W
R205	ERDS2TJ223T	22K 1/4W
R206	ERDS2TJ121T	120 1/4W
R207	ERDS2TJ101T	100 1/4W
R220	ERDS2TJ822T	8.2K 1/4W
R221	ERDS2TJ822T	8.2K 1/4W
R222	ERDS2TJ181T	180 1/4W
R301	ERDS2TJ101T	100 1/4W
R302	ERDS2TJ221T	220 1/4W
R303	ERDS2TJ103T	10K 1/4W
R304	ERDS2TJ471T	470 1/4W
R305	ERDS2TJ222T	2.2K 1/4W
R306	ERDS2TJ103T	10K 1/4W
R307	ERDS2TJ104T	100K 1/4W
R309	ERDS2TJ223T	22K 1/4W
R310	ERDS2TJ103T	10K 1/4W
R311	ERDS2TJ103T	10K 1/4W
R312	ERDS2TJ103T	10K 1/4W
R313	ERDS2TJ472T	4.7K 1/4W
R314	ERDS2TJ103T	10K 1/4W
R315	ERDS2TJ223T	22K 1/4W
R316	ERDS2TJ562T	5.6K 1/4W
R317	ERDS2TJ562T	5.6K 1/4W
R318	ERDS2TJ273T	27K 1/4W
R319	ERDS2TJ562T	5.6K 1/4W
R320	ERDS2TJ334T	330K 1/4W
R321	ERDS2TJ331T	330 1/4W
R322	ERDS2TJ121T	120 1/4W
R323	ERDS2TJ121T	120 1/4W
R324	ERDS2TJ220T	22 1/4W
R325	ERDS2TJ222T	2.2K 1/4W
R326	ERDS2TJ222T	2.2K 1/4W
R327	ERDS2TJ152T	1.5K 1/4W
R328	ERDS2TJ334T	330K 1/4W
R329	ERDS2TJ823T	82K 1/4W
R330	ERDS2TJ105T	1M 1/4W
		CAPACITORS
C1	ECBT1H150JC5	15P 50V
C4	ECBT1H102KB5	1000P 50V
C5	ECBT1H4R7KC5	4.7P 50V
C6	ECBT1H240J5	24P 50V (E/EB)
C6	ECBT1H270J5	27P 50V (EG)
C7	ECBT1H102KB5	1000P 50V
C8	ECBT1H180JC5	18P 50V (E/EB)
C8	ECBT1H200JC5	20P 50V (EG)
C9	ECBT1H270J5	27P 50V
C10	ECBT1H330J5	33P 50V
C11	ECBT1H2R7KC5	2.7P 50V
C14	ECBT1H101KB5	100P 50V
C16	ECBT1H100JC5	10P 50V
C17	ECBT1C222MR5	2200P 16V
C18	ECBT1C103MS5	0.01 16V
C19	ECBT1H561KB5	560P 50V
C20	ECEA1HU3R3B	3.3 50V
C21	ECEA1HU3R3B	3.3 50V
C22	ECQP1H152JZ3	1500P 50V [M]
C23	ECBT1C472MR5	4700P 16V
C24	ECEA1CU220B	22 16V
C25	ECEA1HU010B	1 50V
C26	ECBT1C103MS5	0.01 16V
C30	ECBT1C103MS5	0.01 16V
C31	ECBT1C103MS5	0.01 16V
C32	ECBT1H101KB5	100P 50V
C33	ECBT1C103MS5	0.01 16V
C34	ECBT1C103MS5	0.01 16V
C35	ECEA1CU100B	10 16V
C36	ECBT1H102KB5	1000P 50V
C101	ECEA1HU3R3B	3.3 50V
C102	ECBT0J223NS5	0.022 6.3V
C103	ECEA1HU010B	1 50V
C105	ECFR1C223MR	0.022 16V
C106	ECQV1H184JZ3	0.18 50V
C107	ECBT1H391KB5	390P 50V
C108	ECBT1H102KB5	1000P 50V
C109	ECEA1CU220B	22 16V
C110	ECEA1AU101B	100 10V
C111	ECEA1AU221B	220 10V
C112	ECQV1H224JZ3	0.22 50V
C120	ECFR1C333KR	0.033 16V
C121	ECFR1C333KR	0.033 16V
C201	ECEA1HU3R3B	3.3 50V
C202	ECBT0J223NS5	0.022 6.3V
C203	ECEA1HU010B	1 50V
C205	ECFR1C223MR	0.022 16V
C206	ECQV1H184JZ3	0.18 50V
C207	ECBT1H391KB5	390P 50V
C208	ECBT1H102KB5	1000P 50V
C209	ECEA1CU220B	22 16V
C210	ECEA1AU101B	100 10V
C211	ECEA1AU221B	220 10V
C212	ECQV1H224JZ3	0.22 50V
C220	ECFR1C333KR	0.033 16V
C221	ECFR1C333KR	0.033 16V
C301	ECKR1H223ZF5	0.022 50V
C302	ECKR1H223ZF5	0.022 50V
C303	ECKR1H223ZF5	0.022 50V
C304	ECKR1H223ZF5	0.022 50V
C305	ECKR1H103ZF5	0.01 50V
C306	ECKR1H103ZF5	0.01 50V
C307	ECKR1H103ZF5	0.01 50V
C308	ECKR1H103ZF5	0.01 50V
C309	ECEA1AU101B	100 10V
C310	ECEA1CU471E	470 16V
C311	ECEA1CU102E	1000 16V
C312	ECEA1HU4R7B	4.7 50V
C313	ECEA1CU102E	1000 16V
C314	ECEA1HU4R7B	4.7 50V
C315	ECBT1H102KB5	1000P 50V
C316	ECBT1E223ZF5	0.022 25V
C317	ECQP1H152JZ3	1500P 50V [M]
C318	ECBT1E223ZF5	0.022 25V
C319	ECBT1C472MR5	4700P 16V
C320	ECBT1E223ZF5	0.022 25V

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C321	ECBT1C103MS5	0.01 16V						
C322	ECEA1AU101B	100 10V						
C323	ECEA1CU221B	220 16V						
C324	ECBT1H102KB5	1000P 50V						
C325	ECEA1AU101B	100 10V						
C326	ECBT1C103MS5	0.01 16V						
C327	ECBT1E223ZF5	0.022 25V						
C328	ECBT1E223ZF5	0.022 25V						
C329	ECBT1E223ZF5	0.022 25V						
C330	ECBT1E223ZF5	0.022 25V						
C331	ECBT1H102KB5	1000P 50V						

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